

Application / Control Number: 10/809,719

Paper Dated: March 14, 2008

In Reply to USPTO Correspondence of January 8, 2008

Docket Number: 2003-04

4. **Also per 37 CFR 1.125(c) an accompanying clean version of the complete patent application / specification (36 pages) and drawings (1 thru 19) are supplied.**

5. No new subject matter added.

All previous Claims 1-16 have been canceled,

New claims 17 – 37 have been presented.

## **AMENDMENTS TO THE CLAIMS**

**Claim 17. (New) A gas turbine engine for generating electricity, comprising: an engine body; a #2 rotor spool within said engine body, having an alternator rotor with retained permanent magnets, a bladed compressor rotor having an air inlet and exit and a bladed turbine rotor having a gas inlet and exit; an electrical stator within said engine body, having electrical wire, laminates of magnetically attracted material, and said stator is coaxially about and in close proximity of the said alternator rotor where relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said wires; a combustion system within the said engine body, receives compressor discharge air from the said #2 rotor spool, bladed compressor rotor exit for combusting supplied fuel and delivering of combusted gas energy to the said power rotor spool turbine rotor; a #1 rotor spool within said engine body, having a bladed compressor rotor with an air inlet and exit, a compressor rotor shaft and a bladed turbine rotor with a gas inlet and exit; an air intake in said engine body with communication to said #1 rotor spool compressor inlet; a #1 rotor spool turbine gas discharge duct within said engine body having fluid communication with said #1 rotor spool turbine rotor exit; a ducting means to deliver the said #1 rotor spool compressor**

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rotor exit pressurized air flow to the inlet of the said #2 rotor spool compressor rotor inlet; a ducting means to deliver said #2 spool turbine rotor exiting gas energy to the said #1 rotor spool turbine rotor inlet.

**Claim 18. (New)** A gas turbine engine for generating electricity, as claimed in claim 17 wherein the said ducting means to deliver the said #1 rotor spool compressor rotor exit pressurize air flow to the inlet of the said #2 rotor spool compressor rotor inlet incorporates a variable area fluid flow control device.

**Claim 19. (New)** A gas turbine engine for generating electricity, comprising: an engine body; a #2 rotor spool within said engine body, having an alternator rotor with retained permanent magnets, a bladed compressor rotor having an air inlet and exit and a bladed turbine rotor having a gas inlet and exit; an electrical stator within said engine body, having electrical wire, laminats of magnetically attracted material, and said stator is coaxially about and in close proximity of the said alternator rotor where relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said wires; a combustion system within the said engine body, receives compressor discharge air from the said power rotor spool, bladed compressor rotor exit for combusting supplied fuel and delivering of combusted gas energy to the said #2 rotor spool turbine rotor; a #1 rotor spool within said engine body, having a bladed compressor rotor with an air inlet and exit, a compressor rotor shaft and a bladed turbine rotor with a gas inlet and exit; an air intake in said engine body with communication to said #1 rotor spool compressor inlet; a turbine gas discharge duct within said engine body having fluid communication with

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said #1 rotor spool, turbine rotor exit; a ducting means to deliver the said #1 rotor

spool compressor rotor exit pressurized air flow to the inlet of the said #2 rotor

spool compressor rotor inlet; a ducting means to deliver said #2 spool turbine rotor

existing gas energy to the said #1 rotor spool turbine rotor inlet; a bearing - seal housing

assembly having a rotor bearing and rotor shaft labyrinth seal, within said engine body;

furthermore the said bearing-seal housing assembly is positioned coaxially about the said

#2 rotor spool between the alternator rotor and power spool compressor inlet.

**Claim 20. (New)** A gas turbine engine for generating electricity, as claimed in claim 19

wherein the said bearing-seal housing assembly is incorporated within the said #2 rotor

spool creating a module and is axially insertable into the said engine body.

**Claim 21. (New)** A gas turbine engine for generating electricity, as claimed in claim 19,

wherein a oil squeeze film damper is incorporated between the said bearing-seal

housing assembly outer diameter and the adjacent inner diameter of the said engine

body.

**Claim 22. (New)** A gas turbine engine for generating electricity, as claimed in claim 19,

wherein a oil squeeze film damper is incorporated about the outer diameter of the said

retained bearing within the said bearing - seal housing assembly adjacent inside

diameter; a pin means to retain the said damped bearing outer diameter to the coacting

said bearing-seal housing inner diameter.

**Claim 23. (New)** A gas turbine engine for generating electricity as claimed in claim 19,

wherein oil squeeze film dampers are incorporated in both the said bearing - seal housing

assembly outer diameter and the said retained rotor bearing outer diameter within the

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said bearing-seal housing assembly.

**Claim 24. (New)** A gas turbine engine for generating electricity as claimed in claim 19

wherein the said ducting means to deliver said turbo charger compressor rotor exit,

pressurized airflow to the said power rotor spool compressor inlet, a vaneless scroll flow

area is incorporated to induce an air flow preswirl to the said #2 rotor spool compressor

inlet.

**Claim 25. (New)** A gas turbine engine for generating electricity as claimed in claim 19

wherein the combustion system heat source is from external means comprising: a heat

exchanger having one of two sides of the heat exchanger with air fluid flow communication

between the receiving said #2 spool compressor flow exit air and delivery of heat energy

air flow supply to the said #2 spool turbine rotor gas inlet.

**Claim 26. (New)** A gas turbine engine for generating electricity, as claimed in claim 19

wherein the said shaft seal, labyrinth type outer diameter has resilient retention-sealing

means in the said bearing –seal housing.

**Claim 27. (new)** A gas turbine engine for generating electricity as claimed in claim 19,

wherein the said #2 rotor spool and or said #1 rotor spool have radial compressor

rotors with blades and radial turbine rotors with blades; a compressor diffuser, radially

outboard of the said bladed compressor rotor exits within said engine body; a turbine

nozzle within said engine body, radially outboard of the said bladed turbine rotors; a

multi-piece generally radial seal plate having a minimum of three circumferential

sections, is coaxial about and in close proximity to the spool rotor shaft, is positioned

between the said compressor rotor and said turbine rotor, with retention means to the said

engine body thru said adjacent compressor diffuser and said turbine nozzle being axially

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clamped therein; furthermore one seal radial face circumferential surface is in close proximity to the said turbine rotor blades and the seal inner diameter is radially close to the said spool rotor shaft area between the turbine and compressor.

**Claim 28. (New)** A gas turbine engine for generating electricity as claimed in claim 19, wherein the said #1 rotor spool having a rotor shaft and compressor rotor, incorporates an air supply channel to deliver compressor discharge air as a buffer air means to the said bearing-seal housing retained rotor shaft labyrinth seal.

**Claim 29. (New)** A gas turbine engine for generating electricity, comprising: an engine body; a rotor spool within said engine body having an alternator rotor with retained permanent magnets, a blade compressor rotor with a shaft and a bladed turbine rotor; an electrical stator within said engine body rotor, having laminats of magnetically attracted material, and electrical wire is located coaxial about and in close proximity to the said alternator rotor and relative rotation within the said stator, cause flux change and subsequent electrical power generation within the said stator wire; a combustion system within said engine body, receives pressurized air flow from said rotor spool compressor rotor exit for combusting supplied fuel and delivers the combusted gas energy to the said rotor spool turbine rotor; a compressor inlet within said engine body and having fluid communication with the said rotor spool, compressor inlet; a turbine exhaust gas duct within said engine body and having fluid communication with the power turbine exhaust gas; a bearing –seal housing assembly having a retained shaft bearing and shaft seal, labyrinth seal within said engine body; furthermore the said bearing – seal housing subassembly is incorporated

about the said rotor spool between the said alternator rotor and said compressor

rotor; a oil squeeze film dampening means between the said bearing-seal housing assembly inner diameter and retained adjacent bearing outer diameter; a pin means to retain the said bearing outer diameter to the co acting adjacent said bearing-seal housing assembly receiving inner diameter.

**Claim 30. (New)** A gas turbine engine for generating electricity as claimed in claim 29, wherein the said bearing- seal housing assembly has oil squeeze film dampening between the outer diameter of the said bearing – seal housing assembly and adjacent inside receiving diameter area of the said engine body.

**Claim 31. (New)** A gas turbine engine for generating electricity as claimed in claim 29, wherein the said labyrinth shaft seal in said bearing- seal housing assembly receives buffer air from the rotor spool compressor discharge air thru a channel within the shaft compressor rotor.

**Claim 32. (New)** A gas turbine engine for generating electricity, comprising: an engine body; a rotor spool within said engine body having an alternator rotor with retained permanent magnets, a blade compressor rotor with a shaft and a bladed turbine rotor; a compressor inlet within said body; a turbine exhaust duct within said engine body; an electrical stator within said engine body, having laminats of magnetically attracted material, and electrical wire is located coaxially about and in close proximity to the said alternator rotor and relative rotation within the said stator, cause flux change and subsequent electrical power generation within the said stator wire; a combustion system within said engine body, receives pressurized air flow

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from said spool compressor rotor exit for combusting supplied fuel and delivers the combusted gas energy to the said power spool turbine rotor; an electrical output power insulation block attached to the said engine body; electrical output terminal lugs insertable into said insulation block and said lugs have an outboard threaded end and the inboard end has a sealing means to the said insulation block and is connected to the said stator electrical wire of the electrical stator; retention nuts having communication with threaded outboard terminal lug end and electrical output wire; anti-rotation retention washers having communication with the said retention nuts, output wire, and coacts between the said electrical terminal lug and insulation block resisting the outboard nut installation torque.

**Claim 33. (New)** A gas turbine engine for generating electricity, comprising: an engine body; a #2 rotor spool in said engine body, having an alternator rotor with retained permanent magnets, a bladed compressor rotor and a bladed turbine rotor; an electrical stator having electrical wire and laminats with magnetically attracted material, wherein said stator is coaxially about and in close proximity to the said alternator rotor and relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said electrical wire; a combustion system within the said engine body, receives compressor discharge air from said compressor bladed rotor for combusting supplied fuel and delivery of combusted gas energy to the said power rotor spool turbine rotor; a #1 rotor spool within said body having a compressor rotor with blades, a shaft and turbine rotor with blades; a ducting means to deliver the said #1 rotor spool compressor rotor pressurized exit air flow to

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the inlet of the said #2 rotor spool compressor rotor air inlet; a series of supplemental air tangent start nozzles within said engine body, in close proximity of the outboard end of the said power spool compressor rotor to impinge starting fluid on the exiting blade surface areas; a means to duct supplemental air to the said start nozzles for power rotor spool rotation start means; an internal combustion system within said engine body having fluid communication with said supplemental start fluid exiting flow from the said #2 rotor spool compressor rotor.

**Claim 34(New)** A gas turbine engine for generating electricity, comprising: an engine body; a rotor spool in said engine body, having an alternator rotor with retained permanent magnets, a bladed compressor rotor and a bladed turbine rotor; an electrical stator having electrical wire and laminats made of magnetically attracted material, and the said stator is coaxially about and in close proximity of the said alternator rotor whereby relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said wires; a compressor inlet in said engine body; a turbine exhaust duct within said engine body; a combustion system within the said engine body, receives compressor discharge air from said compressor bladed rotor for combusting supplied fuel and delivery of combusted gas energy to the said power rotor spool turbine rotor; said turbine rotor exhaust gas exits said engine body thru said exhaust duct; a series of tangent air start nozzles within said engine body about the compressor rotor exit to direct air onto the compressor blade area; a duct for supplemental air to the said start nozzles to cause rotor spool rotation as start means; said start air exhausts into the compressor exit and downstream into the combustor as supplemental air enhancing pre-rotor-rotation combustion.

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**Claim 35. (New)** A gas turbine engine for generating electricity, comprising: an engine body; a #2 rotor spool within said engine body, having an alternator rotor with retained permanent magnets, a bladed compressor rotor having an air inlet and exit and a bladed turbine rotor having a gas inlet and exit; an electrical stator within said engine body, having electrical wire, laminats of magnetically attracted material, and said stator is coaxially about and in close proximity of the said alternator rotor where relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said wires; a combustion system within the said engine body, receives compressor discharge air from the said #2 rotor spool, bladed compressor rotor exit for combusting supplied fuel and delivering of combusted gas energy to the said power rotor spool turbine rotor; a #1 rotor spool within said engine body, having a bladed compressor rotor with an air inlet and exit, a compressor rotor shaft and a bladed turbine rotor with a gas inlet and exit; an air intake in said engine body having fluid communication to said #1 rotor spool compressor inlet; a turbine gas discharge duct within said engine body having fluid communication with said #1 rotor spool, turbine rotor exit; a ducting means to deliver the said #1 rotor spool compressor rotor exit pressurized air flow to the inlet of the said #2 rotor spool compressor rotor inlet; a ducting means to deliver said #2 spool turbine rotor exiting gas energy to the said #1 rotor spool turbine rotor inlet; a #1 rotor spindle sleeve assembly, having outer oil seals, at least one rotor thrust bearing and rotor shaft labyrinth seal retained and within said engine body; a #1 rotor spool having a compressor rotor shaft,

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compressor rotor with blades and turbine rotor with blades is insertable into the said rotor spindle sleeve assembly; a rotor thrust bearing, inner diameter retained to the said #1 rotor spool compressor shaft; a rotor retainer means, wherein one end is axially thread adjustable retained to the said engine body and the other end coacts axially restrictive between the said compressor shaft retained thrust bearing outer race and one inboard end of the said rotor spindle sleeve assembly; a #1 spool module consisting of the said rotor spindle sleeve, said #1 rotor spool and said rotor retainer device; and furthermore is axially insertable into the engine body.

**Claim 36. (New)** A gas turbine engine for generating electricity as claimed in claim 34, wherein the said #1 spool module having at least one said rotor bearing outside diameter within the said rotor spindle sleeve assembly, incorporates oil squeeze film dampening between at least one rotor bearing outer race and said rotor spindle adjacent inner diameter.

**Claim 37. (New)** A gas turbine engine for generating electricity as claimed in claim 34, wherein the said rotor spindle sleeve assembly outer diameter within the engine body inner receiving adjacent inner diameter incorporates oil squeeze film dampening.